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New species of microfungi from Brazilian Amazon rainforests

Josiane Santana Monteiro[1], Luana Teixeira do Carmo[2], Patrícia Oliveira Fiúza[3], Bianca Maíra de Paiva Ottoni[4], Luís Fernando Pascholati Gusmão[3]* & Rafael F. Castañeda-Ruiz[5]

[1]*Departamento de Micologia, Universidade Federal de Pernambuco, 50670-420, Recife, Brazil*
[2]*Coordenação de Botânica, Museu Paraense Emílio Goeldi, 66077-530, Belém, PA, Brazil*
[3]*Departamento de Ciências Biológicas, Universidade Estadual de Feira de Santana, 44031-460, Feira de Santana, BA, Brazil*
[4]*Programa de Pós-graduação em Entomologia, Instituto Nacional de Pesquisas da Amazônia,, 69067-375, Manaus, AM, Brazil*
[5]*Instituto de Investigaciones Fundamentales en Agricultura Tropical 'Alejandro de Humboldt' (INIFAT), Académico Titular de la Academia de Ciencias de Cuba, Calle 1 Esq. 2, Santiago de Las Vegas, C. Habana, Cuba, C.P. 17200*

*Correspondence to: *lgusmao@uefs.br*

Abstract —*Isthmophragmospora laevispora* sp. nov., *Henicospora amazonensis* sp. nov., and *Sporidesmiella curtiphora* sp. nov. found on submerged decaying plant materials are described and illustrated. *Isthmophragmospora laevispora* is distinguished by smooth pale brown conidia, each composed of two unequal 2-septate bodies connected by a cellular isthmus; *H. amazonensis* is characterized by clavate to pyriform, 3–4-septate, 1–2 distoseptate, smooth, pale golden brown conidia; and *S. curtiphora* has obovoid to lamp-shaped, 1-septate, olivaceous-brown conidia.

Key words — asexual fungi, freshwater fungi, taxonomy

Introduction

The diversity of anamorphic fungi in the Brazilian Amazon has received little attention, especially in freshwater habitats. During a survey of hyphomycetes associated with plant litter submerged in black water streams from Manaus (Amazonas, Brazil), three undescribed species of the genera *Isthmophragmospora*, *Henicospora*, and *Sporidesmiella* were collected. These specimens, which cannot be assigned to any species currently accepted in these genera, are described herein as new to science.

Materials & methods

Samples of submerged litter were placed in paper and plastic bags. In the laboratory the samples were placed in Petri dish moist chambers and stored in a 170 L polystyrene

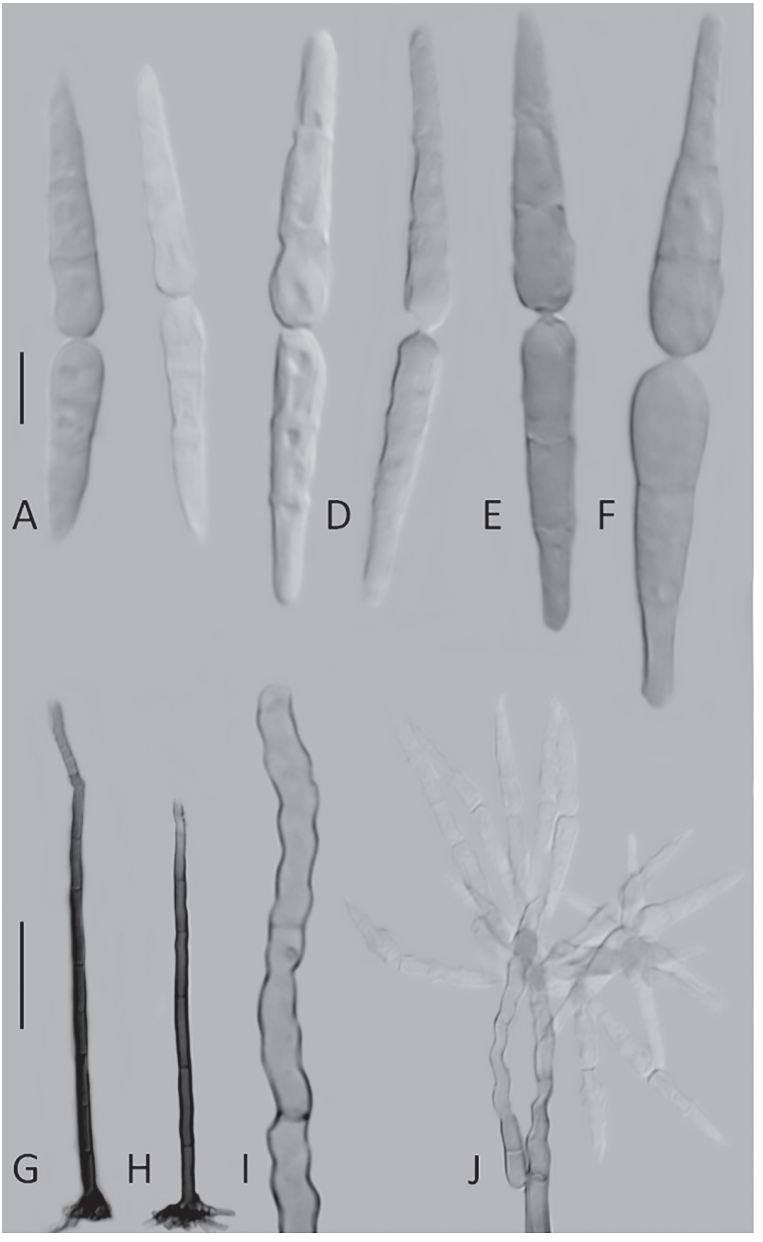

Fig. 1. *Isthmophragmospora laevispora* (holotype HUEFS 194256).
A–F. Conidia. G–I. Conidiophores and conidiogenous cells. J. Conidiogenous cell and conidia.
Scale bars = 10 µm.

box with 200 mL sterile water plus 2 mL glycerol, at 25°C for 30 days (Castañeda-Ruiz 2005). Mounts were prepared in PVL (polyvinyl alcohol, lactic acid, and phenol) and measurements were made at a magnification of ×1000. Micrographs were obtained with an Olympus microscope (model BX51) equipped with bright field and Nomarski interference optics. The type specimens are deposited in the Herbarium of Universidade Estadual de Feira de Santana (HUEFS).

Taxonomy

Isthmophragmospora laevispora J.S. Monteiro, Gusmão & R.F. Castañeda, **sp. nov.** Fig. 1

MycoBank MB805115

Differs from *Isthmophragmospora verruculosa* by its smooth pale brown conidia with 2-septate distal bodies.

Type: Brazil, Amazonas State: Reserva Florestal Adolpho Ducke, 2°55′S 59°58′W, on submerged decaying leaves in a black water stream, 13.March.2013; coll. B.M.P. Ottoni (**Holotype**: HUEFS 194256).

Etymology: Latin, *laevispora,* refers to smooth conidia.

Colonies scattered, effuse, pale brown. Mycelium mostly immersed in substrate. Conidiophores macronematous, mononematous, erect, straight to slightly flexuous, simple, 6–10-septate, smooth, brown, 60–90 × 5–6 µm. Conidiogenous cells polyblastic, integrated, cylindrical, sympodially elongated, denticulate, pale brown, 15–37 × 3–4 µm. Conidial secession schizolytic. Conidia solitary, phragmosporous, smooth, pale brown, 28–51 µm long; two conidial bodies of unequal lengths connected by a narrow isthmus, 1 µm long; proximal conidial body clavate, 2-euseptate, 13–23 µm long, 3–5 µm wide near the isthmus, tapering gradually towards to the point of attachment, 1.5–2 µm wide; distal conidial body obclavate, 2-euseptate, 15–30 µm long, 3.5–5 µm wide near the isthmus, tapering gradually to 1.5–2 µm wide at the rounded apex.

Note: The monotypic genus *Isthmophragmospora* was introduced by Kuthubutheen & Nawawi (1992) for *I. verruculosa* Kuthub. & Nawawi, isolated from submerged decaying twigs in Malaysia. The type species differs from *I. laevispora* by its longer verruculose conidium with a 4–5-septate distal body (Kuthubutheen & Nawawi 1992).

Henicospora amazonensis J.S. Monteiro, Gusmão & R.F. Castañeda, **sp. nov.** Fig. 2

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Differs from *Henicospora coronata* by its wider obovoid to pyriform pale golden brown conidia with prominent apical projections.

Type: Brazil. Amazonas State: Reserva Florestal Adolpho Ducke, 2°56′S 59°57′W, on submerged decaying leaves in a black water stream, 13. March.2013; coll. B.M.P. Ottoni (**Holotype**: HUEFS 194257).

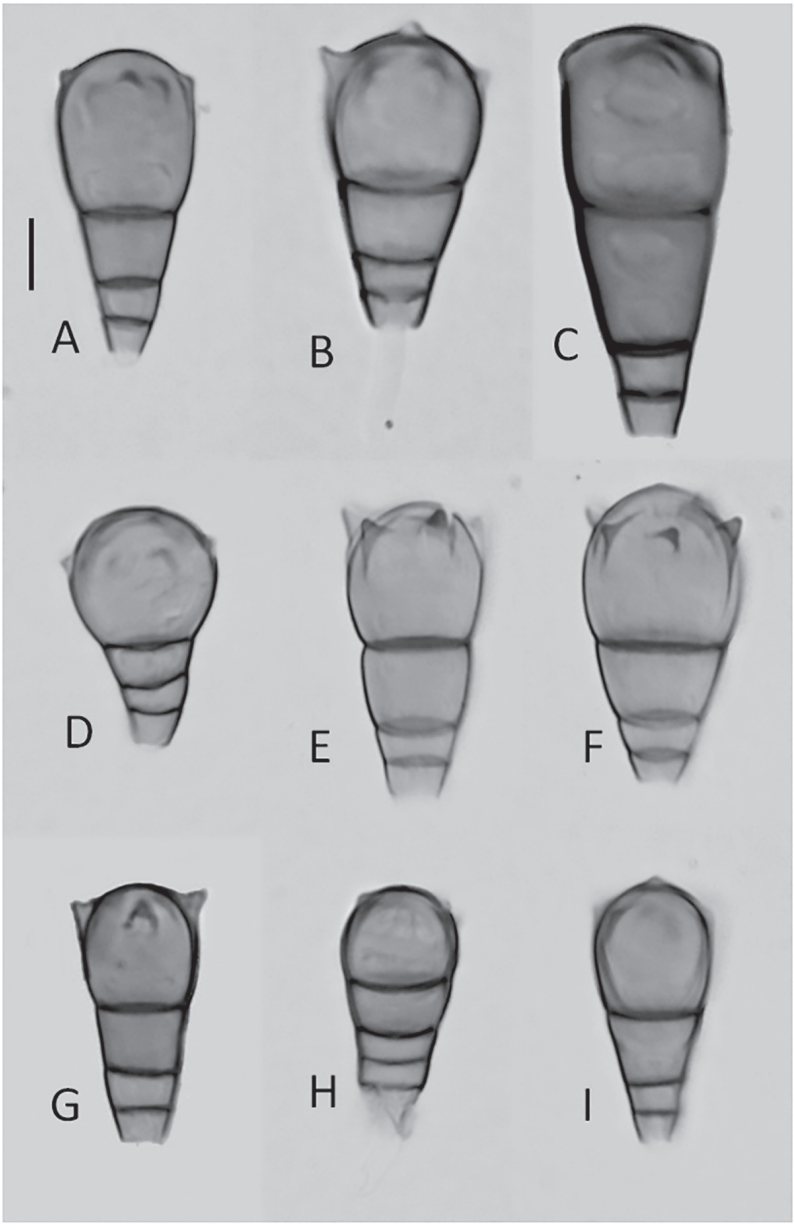

Fig. 2. *Henicospora amazonensis* (holotype HUEFS 194257). A–I. Conidia. Scale bar = 5 µm.

Etymology: Latin, *amazonensis*, referred to the locality of the type specimen.

Colonies effuse, often inconspicuous hairy, pale brown. Mycelium superficial and immersed in substrate. Conidiophores micronematous, mononematous, erect, straight to slightly flexuous, simple, smooth, hyaline, mostly reduced to conidiogenous cells. Conidiogenous cells monoblastic, integrated, terminal, smooth, hyaline, 7.5–12.5 × 2.5 µm. Conidial secession rhexolytic. Conidia clavate to pyriform, 3–4-septate, 1–2 distoseptate, smooth, pale golden brown, 18.5–27.5 × 8–12.5 µm; truncated base, 4–5 µm wide; coronate at apex with 4–6 conical projections, 2–3 × 1–2 µm.

Note: *Henicospora* was erected by Kirk & Sutton (1980) with *H. minor* P.M. Kirk & B. Sutton (type) and two other species; two other species were subsequently added (Kuthubutheen & Nawawi 1994, Matsushima 1989). *Henicospora coronata* P.M. Kirk & B. Sutton somewhat resembles *H. amazonensis* but differs by its cylindrical pale olivaceous brown 5-distoseptate conidia that are 20–29 × 4–5 µm and have inconspicuous mammiform coronal projections (Kirk & Sutton 1980).

Sporidesmiella curtiphora L.T. Carmo, Gusmão & R.F. Castañeda, **sp. nov.** Fig. 3

MycoBank MB805117

Differs from *Sporidesmiella pachyanthicola* by its much shorter conidiophores and larger obovoid to lamp-shaped conidia.

Type: Brazil. Amazonas State: Reserva Florestal Adolpho Ducke, 2°55′S 59°58′W, on submerged decaying leaves in a black water stream, 13.March.2013; coll. B.M.P. Ottoni (**Holotype**: HUEFS 196427).

Etymology: Latin, *curtiphora*, refers to very small conidiophores.

Colonies scattered, effuse, hairy, light brown. Mycelium superficial and immersed in substrate. Conidiophores macronematous, mononematous, solitary, erect, straight, simple, cylindrical, 0–1-septate, smooth, brown, (17.5–) 22.5–25 × 2.5 µm, sometimes reduced to conidiogenous cells. Conidiogenous cells monoblastic, integrated, terminal, cylindrical, with 3–7 enteroblastic percurrent elongations, pale brown. Conidial secession schizolytic. Conidia solitary, obovoid to lamp-shaped, 1-septate, smooth, olivaceous brown, cell lumina reduced, 20–22 × 10 µm; truncate at the base, 3 µm wide.

Note: *Sporidesmiella* was introduced by Kirk (1982) with *S. claviformis* P.M. Kirk (type) and five other species and one variety. Subsequently 25 additional taxa have been introduced (Ma et al. 2011, Santa Izabel & Gusmão 2013). *Sporidesmiella curtiphora* is similar only to *S. pachyanthicola* W.B. Kendr. & R.F. Castañeda (Castañeda-Ruiz & Kendrick 1991), which is clearly differentiated

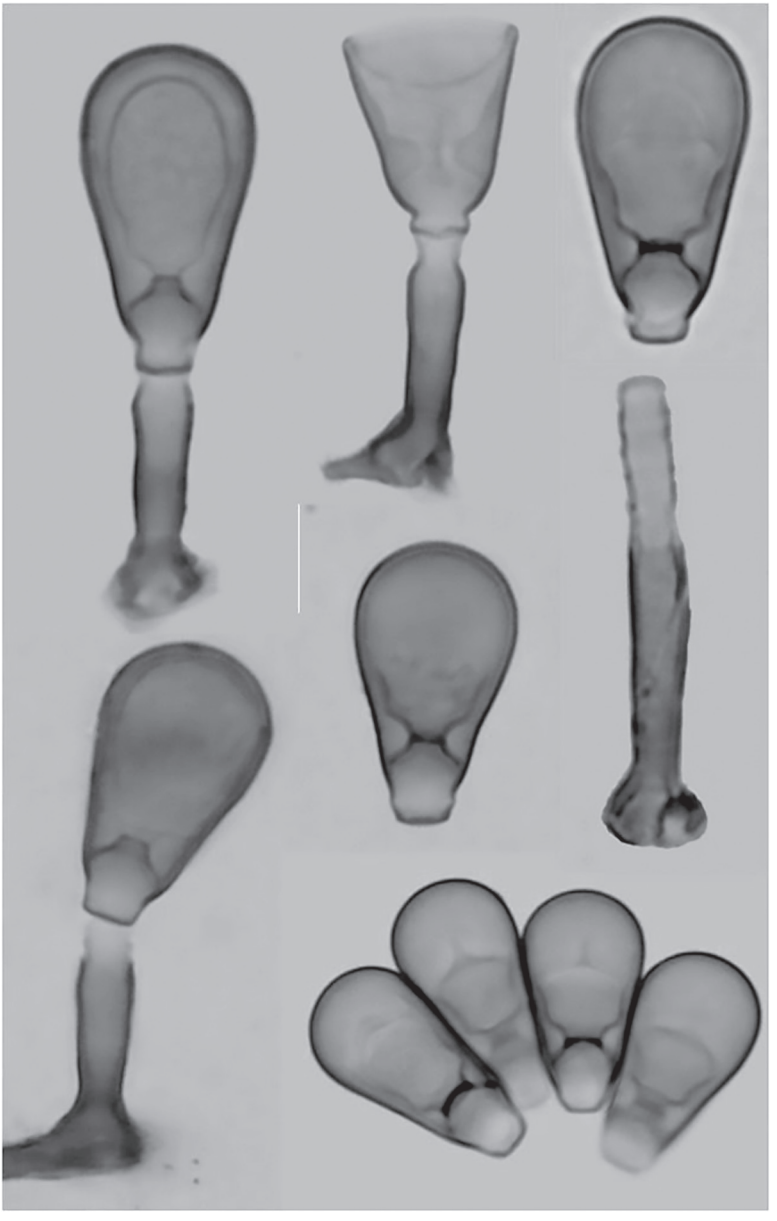

Fig. 3. *Sporidesmiella curtiphora* (holotype HUEFS 196427).
A–D. Conidiophores, conidiogenous cells and conidia. E–F. Conidia. Scale bars = 10 μm.

by its longer (75–200 × 4–7.5 µm) conidiophores and smaller (10–14.5 × 3–4.5 µm) clavate guttulate conidia.

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